

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Canceled)

2. (Currently Amended) ~~The data transmission system according to claim 1, A~~
data transmission system including a resource holding main traffic, and a resource
holding sub-traffic different from said main traffic, said data transmission system
comprising:

a self-healing function of, when a failure related to said main traffic has occurred,
detouring said main traffic to the resource of said sub-traffic to salvage said main traffic;

a means for suppressing said self-healing function for a specific unit defined in
the system;

a service line ~~transmits~~ transmitting said main traffic,

a protection line which is capable of transmitting sub-traffic different from said
main traffic,

self-healing function control means for, when a failure related to said main traffic
has occurred, carrying out a switching process which switches the transmission path of
said main traffic to said protection line to detour said main traffic to said protection line;
and

switching inhibit control means, when a segment sandwiched between adjacent
pieces of node equipment is specified arbitrarily, inhibiting the main traffic set in the

transmission path including the specified segment of said service line from being detoured to said protection line by said switching process at said self-healing function control means.

3. (Original) The data transmission system according to claim 2, wherein said switching inhibit control means inhibits the main traffic in said service line from detouring to said protection line in said specified segment.

4. (Currently Amended) ~~The data transmission system according to claim 1, A~~
data transmission system including a resource holding main traffic, and a resource
holding sub-traffic different from said main traffic, said data transmission system
comprising:

a self-healing function of, when a failure related to said main traffic has occurred,
detouring said main traffic to the resource of said sub-traffic to salvage said main traffic;

a means for suppressing said self-healing function for a specific unit defined in
the system;

a service line ~~transmits~~ transmitting said main traffic,

a protection line which is capable of transmitting sub-traffic different from said
main traffic,

self-healing function control means for, when a failure related to said main traffic
has occurred, carrying out a switching process which switches the transmission path of
said main traffic to said protection line to detour said main traffic to said protection line;
and

switching inhibit control means, when a transmission path set in said service line is specified arbitrarily, inhibiting the main traffic set in the transmission path from being detoured to said protection line by said switching process at said self-healing function control means.

5. (Original) The data transmission system according to claim 4, wherein said switching inhibit control means inhibits the main traffic in said service line from detouring to the resource on said protection line side corresponding to said specified transmission path.

6. (Original) The data transmission system according to claim 5, wherein,
when there is a transmission path for said sub-traffic in said protection line and the transmission path for said sub-traffic includes a resource on said protection line side corresponding to said specified transmission path,

said switching inhibit control means inhibits the main traffic in said service line from detouring to all of the resources in which the transmission path for said sub-traffic has been set.

7. (Currently Amended) ~~The data transmission system according to claim 1, A~~
data transmission system including a resource holding main traffic, and a resource
holding sub-traffic different from said main traffic, said data transmission system
comprising:

a self-healing function of, when a failure related to said main traffic has occurred,
detouring said main traffic to the resource of said sub-traffic to salvage said main traffic;

a means for suppressing said self-healing function for a specific unit defined in
the system;

a service line ~~transmits~~ transmitting said main traffic,

a protection line which is capable of transmitting sub-traffic different from said
main traffic,

self-healing function control means for, when a failure related to said main traffic
has occurred, carrying out a switching process which switches the transmission path of
said main traffic to said protection line to detour said main traffic to said protection line;
and

switching inhibit control means, when a resource serving as a unit of multiplexing
in said service line is specified arbitrarily, inhibiting the main traffic set in the
transmission path including the resource from being detoured to said protection line by
said switching process at said self-healing function control means.

8. (Original) The data transmission system according to claim 7, wherein said
switching inhibit control means inhibits the main traffic in said service line from detouring
to a resource on said protection line side corresponding to said specified resource
serving as a unit of multiplexing.

9. (Currently Amended) ~~The data transmission system according to claim 1, A~~
data transmission system including a resource holding main traffic, and a resource

holding sub-traffic different from said main traffic, said data transmission system

comprising:

a self-healing function of, when a failure related to said main traffic has occurred,
detouring said main traffic to the resource of said sub-traffic to salvage said main traffic;

a means for suppressing said self-healing function for a specific unit defined in
the system;

a service line transmits transmitting said main traffic,

a protection line which is capable of transmitting sub-traffic different from said
main traffic,

self-healing function control means for, when a failure related to said main traffic
has occurred, carrying out a switching process which switches the transmission path of
said main traffic to said protection line to detour said main traffic to said protection line;
and

switching inhibit control means, when a resource serving as the smallest unit in
setting a transmission path in said service line is specified arbitrarily, inhibiting the main
traffic set in the transmission path including the resource from being detoured to said
protection line by said switching process at said self healing function control means.

10. (Original) The data transmission system according to claim 9, wherein said
switching inhibit control means inhibits the main traffic in said service line from detouring
to the resource on said protection line side corresponding to said specified resource
serving as the smallest unit in setting a transmission path.

11. (Original) The data transmission system according to any one of claim 2 to claim 10, further comprising means for creating a transmission path with an attribute of inhibiting the main traffic from being detoured to said protection line by said switching process at said self-healing function control means.

12. (Original) The data transmission system according to any one of claim 2 to claim 10, further comprising means for, when there is a transmission path in which the main traffic is inhibited from being detoured to said protection line by said switching process at said self-healing function control means, canceling the inhibition of the main traffic from detouring to the transmission path.

13. (Original) The data transmission system according to any one of claim 2 to claim 10, wherein,

when said service line and protection line are both multiplex lines and transmission paths concatenated over a plurality of adjacent multiplexing units include said specified object,

said switching inhibit control means inhibits the main traffic set in the concatenated transmission paths from being detoured to said protection line by said switching process at said self-healing function control means.

14. (Currently Amended) ~~The data transmission system according to claim 1, A~~
data transmission system including a resource holding main traffic, and a resource

holding sub-traffic different from said main traffic, said data transmission system

comprising:

a self-healing function of, when a failure related to said main traffic has occurred,
detouring said main traffic to the resource of said sub-traffic to salvage said main traffic;

a means for suppressing said self-healing function for a specific unit defined in
the system;

a service line ~~transmits~~ transmitting said main traffic,

a protection line which is capable of transmitting sub-traffic different from said
main traffic,

self-healing function control means for, when a failure related to said main traffic
has occurred, carrying out a switching process which switches the transmission path of
said main traffic to said protection line to detour said main traffic to said protection line;
and

switching inhibit control means for, when a resource in the system is specified
arbitrarily, inhibiting the main traffic set in the resource from being detoured to said
protection line by said switching process at said self-healing function control means,
regardless of the presence or absence of a transmission path in the resource.

15. (Original) The data transmission system according to claim 14, wherein said
switching inhibit control means inhibits the main traffic in said service line from detouring
to said protection line of said specified resource.

16. (Canceled)

17. (Currently Amended) ~~The network management equipment according to claim 16, comprising:~~ A network management equipment used in a data transmission system which connects a plurality of pieces of node equipment in a ring via a service line transmitting main traffic and a protection line capable of transmitting sub-traffic different from said main traffic and which includes self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line, said network management equipment comprising:

means for suppressing said self-healing function for a specific unit defined in the data transmission system;

specifying means for specifying arbitrarily a segment sandwiched between adjacent pieces of node equipment;

management information creating means for, when the specifying means has specified a segment, creating management information that the main traffic set in the transmission path including the specified segment of said service line is inhibited from being detoured to said protection line by said switching process at said self-healing function control means; and

management information setting means for sending a set request message including said management information created at the management information creating means and setting said management information in each of said plurality of pieces of node equipment.

18. (Original) The network management equipment according to claim 17, wherein said management information creating means causes said management information to include information that the main traffic in said service line is inhibited from detouring to said protection line in said specified segment.

19. (Currently Amended) ~~The network management equipment according to claim 16, comprising:~~ A network management equipment used in a data transmission system which connects a plurality of pieces of node equipment in a ring via a service line transmitting main traffic and a protection line capable of transmitting sub-traffic different from said main traffic and which includes self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line, said network management equipment comprising:

means for suppressing said self-healing function for a specific unit defined in the data transmission system;

specifying means for specifying arbitrarily a transmission path set in said service line;

management information creating means for, when the specifying means has specified a transmission path, creating management information that the main traffic set in the transmission path is inhibited from being detoured to said protection line by said switching process at said self-healing function control means; and

management information setting means for sending a set request message including said management information created at the management information creating means and setting said management information in each of said plurality of pieces of node equipment.

20. (Original) The network management equipment according to claim 19, wherein said management information creating means causes said management information to include information that the main traffic in said service line is inhibited from being detoured to the resource on said protection line side corresponding to said specified transmission path.

21. (Original) The network management equipment according to claim 20, wherein,
when a transmission path for said sub-traffic exists in said protection line and the transmission path for said sub-traffic includes the resource on the protection line side corresponding to said specified transmission path,

said management information creating means causes said management information to include information that the main traffic in said service line is inhibited from detouring to all the resources in which the transmission path for said sub-traffic has been set.

22. (Currently Amended) ~~The network management equipment according to claim 16, comprising:~~ A network management equipment used in a data transmission

system which connects a plurality of pieces of node equipment in a ring via a service line transmitting main traffic and a protection line capable of transmitting sub-traffic different from said main traffic and which includes self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line, said network management equipment comprising:

means for suppressing said self-healing function for a specific unit defined in the data transmission system;

specifying means for specifying arbitrarily a resource serving as a unit of multiplexing in said service line;

management information creating means for, when the specifying means has specified a resource, creating management information that the main traffic set in the transmission path including the resource is inhibited from being detoured to said protection line by said switching process at said self-healing function control means; and

management information setting means for sending a set request message including said management information created at the management information creating means and setting said management information in each of said plurality of pieces of node equipment.

23. (Original) The network management equipment according to claim 22, wherein said management information creating means causes said management

information to include information that the main traffic in said service line is inhibited from detouring to the resource on said protection line side corresponding to said specified resource serving as a unit of multiplexing.

24. (Currently Amended) ~~The network management equipment according to claim 16, comprising:~~ A network management equipment used in a data transmission system which connects a plurality of pieces of node equipment in a ring via a service line transmitting main traffic and a protection line capable of transmitting sub-traffic different from said main traffic and which includes self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line, said network management equipment comprising:

means for suppressing said self-healing function for a specific unit defined in the data transmission system;

specifying means for specifying arbitrarily a resource serving as the smallest unit in setting a transmission path in said service line;

management information creating means for, when the specifying means has specified a resource, creating management information that the main traffic set in the transmission path including the resource is inhibited from being detoured to said protection line by said switching process at said self-healing function control means;
and

management information setting means for sending a set request message including said management information created at the management information creating means and setting said management information in each of said plurality of pieces of node equipment.

25. (Original) The network management equipment according to claim 24, wherein said management information creating means causes said management information to include information that the main traffic in said service line is inhibited from detouring to the resource on said protection line side corresponding to said specified resource serving as the smallest unit in setting a transmission path.

26. (Original) The network management equipment according to any one of claim 17 to claim 25, further comprising path creating means for creating a transmission path with an attribute of inhibiting the main traffic from being detoured to said protection line by said switching process at said self-healing function control means.

27. (Original) The network management equipment according to any one of claim 17 to claim 25, further comprising canceling means for, when there is a transmission path in which the main traffic is inhibited from being detoured to said protection line by said switching process at said self-healing function control means, canceling the inhibition of the main traffic from detouring to the transmission path.

28. (Original) The network management equipment according to any one of claim 17 to claim 25, wherein,

when said service line and protection line are both multiplex lines and transmission paths concatenated over a plurality of adjacent multiplexing units include said specified object,

said management information creating means causes said management information to include information that the main traffic set in the concatenated transmission paths is inhibited from being detoured to said protection line by said switching process at said self-healing function control means.

29. (Original) The network management equipment according to any one of claim 17 to claim 28, further comprising matching means for matching the management information set in each of said plurality of pieces of node equipment by said management information setting means among the pieces of node equipment under the control of at least the present network management equipment.

30. (Original) The network management equipment according to claim 26, wherein said path creating means creates in said protection line a transmission path with an attribute of inhibiting the main traffic from being detoured to its own transmission resource by said switching process at said self-healing function control means.

31. (Currently Amended) ~~The network management equipment according to claim 16, comprising:~~ A network management equipment used in a data transmission

system which connects a plurality of pieces of node equipment in a ring via a service line transmitting main traffic and a protection line capable of transmitting sub-traffic different from said main traffic and which includes self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line, said network management equipment comprising:

means for suppressing said self-healing function for a specific unit defined in the data transmission system;

specifying means for specifying a resource in the system arbitrarily;

management information creating means for, when the specifying means has specified a resource, inhibiting the main traffic set in the transmission path including the specified resource in said service line from being detoured to said protection line by said switching process at said self-healing function control means, regardless of the presence or absence of a transmission path in the resource; and

management information setting means for sending a set request message including said management information created at the management information creating means and setting said management information in each of said plurality of pieces of node equipment.

32. (Original) The network management equipment according to claim 31, wherein said management information creating means causes said management

information to include information that the main traffic in said service line is inhibited from detouring to said protection line of said specified resource.

33. (Canceled)

34. (Currently Amended) ~~The node equipment according to claim 33,~~
~~comprising: A node equipment used in a data transmission system which connects a~~
~~plurality of pieces of node equipment in a ring via a service line transmitting main traffic~~
~~and a protection line capable of transmitting sub-traffic different from said main traffic~~
~~and which includes self-healing function control means for, when a failure related to said~~
~~main traffic has occurred, carrying out a switching process which switches the~~
~~transmission path of said main traffic to said protection line to detour said main traffic to~~
~~said protection line, said node equipment comprising:~~

~~means for suppressing said self-healing function for a specific unit defined in the~~
~~data transmission system;~~

self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line;

set request accepting means for specifying a segment sandwiched between adjacent pieces of node equipment and, when receiving a set request message including management information that the main traffic set in the transmission path including the specified segment of said service line is inhibited from being detoured to said protection line by said switching process at said self-healing function control

means, accepting the set request message, interpreting the management information included in the message, and creating management information to be set in the present piece of node equipment;

memory means for storing the management information created at the set request accepting means; and

switching inhibit control means for partially inhibiting said switching process by said self-healing function control means on the basis of the management information stored in the memory means.

35. (Original) The node equipment according to claim 34, wherein said set request accepting means causes the management information to be set in said present piece of node equipment to include information that the main traffic in said service line is inhibited from detouring to said protection line in said specified segment.

36. (Currently Amended) ~~The node equipment according to claim 33,~~
~~comprising:~~ A node equipment used in a data transmission system which connects a plurality of pieces of node equipment in a ring via a service line transmitting main traffic and a protection line capable of transmitting sub-traffic different from said main traffic and which includes self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line, said node equipment comprising:

means for suppressing said self-healing function for a specific unit defined in the data transmission system;

self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line;

set request accepting means for specifying any one of the transmission paths set in said service line and, when receiving a set request message including management information that the main traffic set in the transmission path is inhibited from being detoured to said protection line by said switching process at said self-healing function control means, accepting the set request message, interpreting the management information included in the message, and creating management information to be set in the present piece of node equipment;

memory means for storing the management information created at the set request accepting means; and

switching inhibit control means for partially inhibiting said switching process by said self-healing function control means on the basis of the management information stored in the memory means.

37. (Original) The node equipment according to claim 36, wherein said set request accepting means causes the management information to be set in said present piece of node equipment to include information that the main traffic in said service line is inhibited from detouring to the resource on said protection line side corresponding to said specified transmission path.

38. (Original) The node equipment according to claim 37, wherein,
when a transmission path for said sub-traffic exists in said protection line and the transmission path for said sub-traffic includes the resource on the protection line side corresponding to said specified transmission path,
said set request accepting means causes said management information to be set in said present piece of node equipment to include information that the main traffic in said service line is inhibited from detouring to all the resources in which the transmission path for said sub-traffic has been set.

39. (Currently Amended) ~~The node equipment according to claim 33,~~
~~comprising:~~ A node equipment used in a data transmission system which connects a plurality of pieces of node equipment in a ring via a service line transmitting main traffic and a protection line capable of transmitting sub-traffic different from said main traffic and which includes self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line, said node equipment comprising:
means for suppressing said self-healing function for a specific unit defined in the data transmission system;

self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line;

set request accepting means for specifying any one of the resources serving as a unit of multiplexing in said service line and, when receiving a set request message including management information that the main traffic set in the transmission path including the resource is inhibited from being detoured to said protection line by said switching process at said self-healing function control means, accepting the set request message, interpreting the management information included in the message, and creating management information to be set in the present piece of node equipment;

memory means for storing the management information created at the set request accepting means; and

switching inhibit control means for partially inhibiting said switching process by said self-healing function control means on the basis of the management information stored in the memory means.

40. (Original) The node equipment according to claim 39, wherein said set request accepting means causes the management information to be set in said present piece of node equipment to include information that the main traffic in said service line is inhibited from detouring to the resource on said protection line side corresponding to said specified resource serving as a unit of multiplexing.

41. (Currently Amended) ~~The node equipment according to claim 33,~~
~~comprising:~~ A node equipment used in a data transmission system which connects a plurality of pieces of node equipment in a ring via a service line transmitting main traffic and a protection line capable of transmitting sub-traffic different from said main traffic

and which includes self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line, said node equipment comprising:

means for suppressing said self-healing function for a specific unit defined in the data transmission system;

self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line;

set request accepting means for specifying any one of the resources serving as the smallest unit in setting a transmission path in said service line and, when receiving a set request message including management information that the main traffic set in the transmission path including the resource is inhibited from being detoured to said protection line by said switching process at said self-healing function control means, accepting the set request message, interpreting the management information included in the message, and creating management information to be set in the present piece of node equipment;

memory means for storing the management information created at the set request accepting means; and

switching inhibit control means for partially inhibiting said switching process by said self-healing function control means on the basis of the management information stored in the memory means.

42. (Original) The node equipment according to claim 41, wherein said set request accepting means causes the management information to be set in said present piece of node equipment to include information that the main traffic in said service line is inhibited from detouring to the resource on said protection line side corresponding to said specified resource serving as the smallest unit in setting a transmission path.

43. (Currently Amended) ~~The node equipment according to claim 33,~~
comprising: A node equipment used in a data transmission system which connects a plurality of pieces of node equipment in a ring via a service line transmitting main traffic and a protection line capable of transmitting sub-traffic different from said main traffic and which includes self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line, said node equipment comprising:

means for suppressing said self-healing function for a specific unit defined in the data transmission system;

self-healing function control means for, when a failure related to said main traffic has occurred, carrying out a switching process which switches the transmission path of said main traffic to said protection line to detour said main traffic to said protection line;

set request accepting means for specifying a resource in said data transmission system and, when receiving a set request message including management information that the main traffic set in the transmission path including the specified resource is inhibited from being detoured to said protection line by said switching process at said

self-healing function control means, accepting the set request message, interpreting the management information included in the message, and creating management information to be set in the present piece of node equipment;

memory means for storing the management information created at the set request accepting means; and

switching inhibit control means for partially inhibiting said switching process by said self-healing function control means on the basis of the management information stored in the memory means.

44. (Original) The node equipment according to claim 43, wherein that said set request accepting means causes the management information to be set in said present piece of node equipment to include information that the main traffic in said service line is inhibited from detouring to said protection line of said specified resource.